SYSTEM AND METHOD FOR STABILITY CONTROL IN A CENTRIFUGAL COMPRESSOR

ABSTRACT OF THE DISCLOSURE

A stability control algorithm is provided for a centrifugal compressor. The stability control algorithm is used to control a variable geometry diffuser and a hot gas bypass valve (when provided) in response to the detection of compressor instabilities. The stability control algorithm can adjust the position of a diffuser ring in the variable geometry diffuser in response to the detection of a surge condition or a stall condition. In addition, the diffuser ring in the variable geometry diffuser can be adjusted to determine an optimal position of the diffuser ring. The stability control algorithm can also be used to open a hot gas bypass valve in response to the detection of continued surge conditions.